Some Fundamental Factors in the American Rubber Industry

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EVALUATION of the position of any industry properly involves consideration of its raw materials. This is especially true of the domestic rubber industry. From the discovery of vulcanization in 1839 by Charles Goodyear, until 1910, rubber from wild trees and vines growing in the jungle supplied the needs of the world. The price of rubber during the earlier part of this period was in the neighborhood of 25 cents a pound, and for the entire period the trend of prices for rubber and rubber products was irregularly upward. During the first decade of the twentieth century the price of rubber averaged well over a dollar a pound and did not fall below 50 cents a pound until 1919. The rubber manufacturing industry was established on the basis of high-priced raw material, and this fact, taken in connection with the fluctuation in crude rubber prices since 1919, is primarily responsible for the current financial position of the industry.

The Crude Rubber Background

Plantation rubber, which first appeared in 1900, became of sufficient importance to check the orgy of rubber speculation in 1910 when the price temporarily exceeded $3 a pound, and was responsible for the subsequent gradual decline in prices until 1920. Real overproduction was then experienced for the first time, and combined with the post-war trade slump brought the price of rubber to 11½ cents in July 1921. This situation led to the Stevenson restriction scheme, by which exports of rubber from British Malaya and Ceylon were controlled from 1922 to 1928. The operation of the scheme resulted in a wave of speculation which in 1925 forced the price temporarily to $1.20 a pound. American manufacturers formed a buying pool to protect themselves against such wide price fluctuations, and during the year and a half ended December 1927, the price of rubber was relatively stabilized between 35 and 45 cents. This brief interval was the only period of real prosperity in the manufacturing industry since 1919. With the end of the Stevenson scheme in 1928, rubber prices declined 50 percent and the subsequent increase of production, together with the world depression, resulted in the record low price of 2⅝ cents a pound in June-July 1932. Since then an international rubber regulation agreement has been negotiated and made effective, and under its influence, together with world industrial recovery and devaluation of the dollar, the price of rubber has risen to the recent level of around 11–13 cents a pound in New York.

Summary Data on Rubber Manufacturing Industry

The number of establishments in the industry as a whole, reported in the biennial census of manufactures, declined from 530 in 1925 to 408 in 1933. The growth in size of establishments shown in table 1 under tonnage consumption of crude and reclaimed rubber is indicative only to a small degree of the extent to which concentration has actually occurred, more particularly in the larger items of production. The concentration in the tire industry has been pronounced during the post-war period. In 1921, there were 178 plants engaged principally in tire manufacturing, whereas in 1933 the number was 44 and in several instances one company controlled two or more plants.

The last three columns of table 1 show that whereas the average consumption of rubber and reclaimed rubber was fairly well maintained in 1931 and 1933, the cost of all materials used, and the value of finished goods, diminished greatly. The average wage earners per establishment declined very sharply in 1931 but recovered in 1933. Considering the very low rate of operations in the first 4 months of 1933, and the shorter hours adopted in many rubber factories, it is not surprising that average wages per employee declined.

Table 1.—Summary Data—United States Rubber Manufacturing Industry

Year	Number of establishments	Wages per employee	Average per establishment: Number of wage earners	Unit horsepower	Crude and reclaim consumption	Total cost of materials	Wholesale value of products
		Dollars			*Tons*	*Thousands of dollars*	*Thousands of dollars*
1889	167	[1] 480	131	103	(2)	157	267
1899	301	422	172	236	(2)	200	353
1904	265	458	166	329	(2)	302	469
1909	267	510	185	459	(2)	460	739
1914	342	697	214	554	203	477	880
1919	477	1,223	332	900	616	1,340	2,356
1921	406	1,107	208	(2)	446	752	1,431
1923	529	1,321	208	1,140	740	947	1,812
1925	530	1,348	268	1,244	961	1,390	2,390
1927	510	1,395	276	1,633	1,046	1,280	2,374
1929	525	1,390	284	1,504	1,274	1,193	2,129
1931	453	1,154	219	(2)	1,086	648	1,356
1933	408	933	260	(2)	1,161	621	1,196

[1] Estimate.
[2] Data not available.

Source: Bureau of the Census and Bureau of Foreign and Domestic Commerce.

Profitless Operation of Rubber Manufacturing Industry

According to the income tax reports, the rubber manufacturing industry as a whole had a net income (after taxes) amounting to only $25,107,000, or 0.148 percent, on a gross income of $16,918,535,000 during the 15 years 1918–32, inclusive. Losses on rubber price fluctuations were an important factor since these tended to offset such profits as arose from the constantly mounting volume of business.

Not all divisions of the industry were equally affected by the adverse conditions prevailing during this period, and the general situation in any division of the industry did not necessarily apply to each individual company. Table 2, based on income-tax returns, shows that the tire division made far less profit in 1927–29 than the much smaller remainder of the industry, and that it suffered a greater percentage (4.65 percent deficit) loss in 1930–32 than other divisions (4.15 percent deficit). The table also indicates the severe

decline in the dollar volume of business in the latter 3-year period as compared with the former.

Table 2.—Profits of Rubber Corporations, 1927-32

[In thousands of dollars]

Item	Tire corporations		Other rubber corporations	
	1927-29	1930-32	1927-29	1930-32
Total gross income	3,503,604	2,129,866	571,084	367,908
Corporations reporting net income:				
Gross income	2,297,438	907,642	490,501	158,646
Net income	115,766	18,620	47,911	9,680
Income tax	13,627	1,862	5,556	1,037
Net less tax	102,139	16,758	42,355	8,643
Corporations reporting no net income:				
Gross income	1,206,166	1,222,224	80,583	209,262
Deficit	93,825	115,876	8,771	23,884
Net income less tax and deficit	8,314	−99,118	33,584	−15,241

Note.—Minus sign (−) indicates net deficit.
Source: Income Tax Unit, Bureau of Internal Revenue.

The classification of a corporation as a "tire corporation" merely means that the majority of its business was in tires. In the last decade the tire corporations have branched out into other products more and more, particularly in lines lending themselves to mass-production methods. The extreme low prices of rubber have also led to its utilization to an increasing degree by corporations not classified in the rubber industry, and consequently it has become difficult to determine total annual rubber consumption data for recent years.

Taxes Paid by the Industry

The unprofitableness of the rubber industry has made it a meager source of income tax revenue to the Federal Government, the average yearly income tax paid being $6,394,000 in 1927–29 and $980,000 annually in 1930–32. In July 1932, a manufacturer's excise tax became applicable to sales of tires and inner tubes, yielding $7,545,071 in the last half of 1932, $23,836,119 in 1933, and $24,704,078 in 1934; this tax amounts on the average to nearly 50 cents a tire and 10 cents an inner tube and in 1933 was equivalent to an ad valorem rate of 9.33 percent on the total value of production. The income-tax reports show that in the years 1927 to 1930, inclusive, local taxes (not including Federal income tax) paid by the rubber corporations averaged $8,800,000 annually with little variation.

Bonded Debt, Depreciation, and Inventory

The bonded indebtedness for rubber corporations as a whole amounted to 15.7 percent of their gross sales in 1926, 25.3 percent in 1930, and 36.2 percent in 1932, according to the income-tax reports. Capital assets of the industry were reported at $551,000,000 in 1926, $491,000,000 in 1930, and $421,000,000 in 1932, depreciation being charged off at a rate ranging between 5.19 percent to 8.12 percent and averaging 6.56 percent annually, from 1924 to 1932, inclusive.

The inventory figure reported for the industry has shrunk each year since 1926, when it was $341,000,000, being reported at $132,000,000 for 1932, although the tonnage of rubber held increased heavily each year from 1928 to 1932. In the same period, total assets likewise show a continuous decline from $1,561,000,000 for 1927 to $1,214,000,000 for 1932.

Recently Improved Financial Results

Despite these conditions, and with interest payments on bonded indebtedness and on notes and accounts payable averaging above $25,000,000 annually from 1922 to 1930, inclusive, not all the corporations were operated at a loss, and cash dividends were paid out each year, but in decreasing amounts; the average for 1927–29 was $44,000,000, and for 1930–32 was $30,000,000 ($44 000,000 in 1930, $27,000,000 in 1931, and $19,000,000 in 1932).

From a special analysis of income-tax reports it appears that 26 rubber corporations accounted for 70 percent of the business of the industry from 1919 to 1923, and that on the average they reported better operating results than their smaller competitors.

The year 1932 shows the situation in the industry at its worst; for 1933, preliminary official reports indicate that the industry earned a small net income (after taxes) for the first time in 4 years, and 1934 financial reports of leading corporations indicate that some further improvement was made last year. This is in part due to inventory appreciation and in part to improved volume of business, particularly in original equipment tire sales.

Need for Stability in Price of Rubber

The cry of the industry in 1910 was for stability in the price of rubber. During the life of the Stevenson restriction scheme, tire manufacturers not only urged continuously their need for sufficiently stabilized material prices to enable them to devote themselves to problems of manufacture and distribution, but even went to the extent of providing for such stability (while the scheme continued effective) through a rubber buying pool. Because the United States rubber requirements are wholly imported, international exchange rates have an important price influence. Because the commodity is historically subject to wide price fluctuations, it is followed closely by speculative interests. These factors militate against the desired price stability. Nevertheless, the plantation rubber industry seems to be groping toward orderly distribution and pricing of its commodity, and it is not unlikely that, having passed youthful boom stages and subsequent depressions, the natural trend toward balance may aid them to attain a more uniform price than has characterized recent rubber history.

Alternative Sources of Raw Material

The dependence of the industry on foreign sources of rubber, the fact that huge quantities of worn-out rubber products accumulate here where half of the world production of rubber goes into consumption, and the high rubber prices prevailing until recent years, resulted in the development of what has become a most important adjunct to the rubber manufacturing industry. Reclaimed rubber made by the acid process was first produced in this country about 1871, and the alkali process of recovery was invented early in the present century. It is said that in 1910 new rubber was very sparingly used except in tire treads, and that on the average two times as much reclaim as crude rubber was consumed in the rubber industry as a whole. The reclaiming industry suffered a severe blow in the 1921 depression, but during the Stevenson restriction scheme use of reclaim was again popularized, and its

true intrinsic value as a compounding ingredient became generally recognized. The use of over 20 percent as much reclaim as crude during 1932, when the average price of rubber was 3½ cents, furnished convincing evidence of the real place reclaimed rubber had won for itself, and during the latter part of 1933 and during 1934 the percentage use of reclaim increased gradually but steadily. It is possible that the new rubber restriction agreement may result in an increasing foreign demand for reclaimed rubber produced in this country.

Technologic Achievements Scarcely Paralleled

The record of achievement in the technological developments of the rubber manufacture is perhaps not exceeded in any other major industry. Fabrics proofed with rubber, and rubber footwear, were among the early products; belting, hose, and other types of mechanical rubber goods developed somewhat later. The pneumatic tire industry gained headway during the nineties and the automobile tire industry, which today accounts for the bulk of rubber consumption, reached maturity only about 10 years ago. Fabric clincher tires with an average life of 0.85 year were succeeded in 1920 by straight side high pressure cords which lasted 1.5 years; these cords were succeeded in 1925 by the first balloon tires with an average life of 2.25 years; these in turn are now being replaced by low pressure tires with an average life already approaching 3 years. The desire of consumers for trouble-free tires and the competition between manufacturers for a volume of business that would keep their plants as near capacity output as possible, combined to make quality (next to skillful rubber trading) the keynote of success in the industry. The tires of today average around 18,000 miles in service, at least six times the mileage rendered by the average tire before 1920.

In view of the decline in rubber prices, one would expect the price of tires to have declined considerably in recent years. In this connection, however, it should be borne in mind that the other principal materials used in rubber manufacture—cotton, sulphur, carbon black, zinc oxide, reclaimed rubber, and other compounding ingredients and plasticizing agents—have declined in price much less than has rubber. Further, since the price data are computed in terms of the average tire, one must allow for the fact that the average tire of today weighs more than it did 15 years ago; an increasing number of large sizes of tires for trucks and busses, for example, have been produced during the past 10 years.

Tire Price Reductions Since 1919

Analysis of the data of the Bureau of the Census shows that labor costs, and "overhead and other costs", in the tire industry have declined much the same as material costs; practical finance seems to have operated to maintain a fixed ratio in respect to material, labor, and other costs. The success of the industry in keeping labor costs approximately in line with the very sharply declining price of materials certainly indicates outstanding progress in manufacturing technique. Analysis of table 3, however, will show that in 1933 wages in the tire industry represented 18.3 percent of the total value of production, as compared with only 13 percent in 1925, and 15.9 percent in 1919.

Table 2.—Tire Prices and Tire Price Elements, 1919–33

Year	Unit price	Price elements		
		Materials	Labor	Other costs
1919	$18.25	$8.71	$2.90	$6.64
1921	17.40	[illegible]	2.04	[illegible]
1923	9.03	[illegible]	[illegible]	[illegible]
1925	11.07	6.71	1.44	2.92
1927	10.00	5.74	1.28	2.98
1929	8.12	4.63	1.24	2.25
1931	6.38	2.73	.99	2.66
1933	4.87	2.27	.89	1.71

The improved and heavier tires of 1933 were sold at 27 percent of the prices at which the less durable product of 1919 were marketed. A sixfold increase in mileage, accompanied by a quartering of the selling price, while the material content of the average tire doubled, is the striking accomplishment of the tire industry over the past 15 years.

Tire Distribution Changes Rapid

In the field of marketing, the tire division of the industry has utilized every channel of distribution. In 1920, retail sales were made almost wholly through so-called independent tire dealers and dealer-jobbers. Mail order houses, automotive supply chain stores, stores operated by tire manufacturing companies, and oil company filling station chains have one after another taken a share of the business away from the independent dealer or from one another, and a respectable volume formerly handled by the dealers now reaches the consumer in the form of spare tires on new automobiles and through direct shipments from factory to large accounts. While there are today fully 180,000 retail outlets for tires in the United States, some 15,000 of the larger outlets probably account for about two-thirds of the total renewal sales.

In recent years there has been complaint from small distributors against discount and net price practices of rubber manufacturers on sales to large distributors. Just as lack of stability in raw material prices has been detrimental to the rubber manufacturing industry, so has lack of uniformity in wholesale tire prices to distributors been a disturbing factor in the field of distribution.

This situation in distribution is not peculiar to the rubber trade—the mass distributor has similar purchasing advantages in most lines—but in the case of tires, sales being predicated on possession of an automobile by the consumer, the distributor selling at a low price usually dominates more territory than, for example, in the case of footwear or clothing, where the average consumer is more limited in his buying radius. Further, standardization of tire sizes makes products of different companies freely interchangeable in use; tires are bought for utility rather than for appearance; consumers lack any means of determining relative quality except through experience in service; and the products of the principal manufacturers are, in public acceptance, of more or less equivalent quality. For these reasons, tire distribution has perhaps been affected by wholesale price conditions more than most other commodities. Retail price lists have often been merely a basis for discounts and allowances. Under the tire code, attempts were made at retail price maintenance, but these were finally abandoned.